US EPA Region 6 – Site-Specific Health and Safety Plan (HASP)

GENERAL INFORMATION	***Facility/Site Name:***	**International Terminal Corporation Tank Fire**	
	Field Start Date (MM/DD/YYYY):	03/17/2019	***Field End Date:***
	Facility/Site Location: (complete address, if relevant)	International Terminal Corporation, 1943 Independence Parkway, Deer Park, TX	
	General Description of Site Activities:	Conduct air and surface water sampling in and around the plant, and surface water sampling from a boat traveling in the Houston Ship Channel.	

EMERGENCY INFORMATION	***Non-911 Emergency Phone:*** (Direct to police, fire, hospital and Facility; include area code)	**Police:** Deer Park Police Department	**Fire:** Deer Park Fire Department
		Hospital:	**Facility/Site:**
	Medical Facilities: (Name and Address)	HCA Houston Southeast, 4000 Spencer Hwy, Pasadena, TX	
	Directions to Local Medical Facilities:	(see attached map with directions)	
	Site-Specific Emergency Response Procedures:	Dial 911	

EPA RESOURCES	**Name**	**Work Phone**	**Mobile Phone**
Team/Project Leader:	Adam Adams		214-202-6952
First-Line Supervisor:	Chris Petersen	(214) 665-3167	
R6 SHEMP Manager:	Kendra Mask	(214) 665-7225	(214) 205-7643
Workmen's Comp Manager:	Kendrick Young	(214) 665-7466	---

HAZARDS / SAFETY	***Applicable JHA(s):***			
	Check Potential Hazards:			
	☐ Radiation	☑ Toxics	☑ Fire/Explosion	☐ Corrosives
	☐ O_2 Deficiency	☐ Noise	☑ Physical	☐ Other:
	☐ Dusts	☑ Heat/Cold Stress	☐ Biological	
	Site Specific Hazard Description: (i.e. potential hazards, routes of entry, quantity of chemicals present, etc.)	Inhalation /absorption hazard of chemical hazards. Chemical hazards include the gasoline components (Naphtha, Xylene, and Toluene), semi-volatile organic compounds (SVOCs), Polyfluoroalkyl Substances (PFAS), and volatile organic compounds (VOCs); in particular Benzene. Physical hazards are present, including slips, trips, and falls. Physical hazards associated with watercraft operations are also present. Heat/cold stress may also be a potential hazard depending on weather. Operational Hazard include long hours.		
	Safety Monitoring Equipment Required: (list equipment)	Air Monitoring for VOCs, Benzene, and PM.		
	Prevention:	*All site safety procedures shall be followed. Areas with potential exposure to chemical, physical and explosive hazards shall be avoided if at all possible. Team members shall not enter confined spaces or areas with potential unexploded ordinance. In case of emergency, all inspection staff shall exit and allow site personnel to contain and manage incident.*		
	Safety Supplies:	Reference attached JHA		

Facility/Site Name:	International Terminal Corporation Tank Fire		
Field Start Date:	03/17/2019	***Field End Date:***	

HASP Approval / H&S Certification

This site HASP has been reviewed and constitutes the minimum anticipated safety requirements for personnel engaged in field activities at this project site. NOTE: THE HASP HAS TO BE COMPLETE WITH ATTACHMENTS BEFORE SIGNING.

By signing below, I certify that I have read and understand the JHA applicable to this HASP, have completed all required health and safety training, and possess all required personal protective equipment.

Team and/or Project Leader/ Cell Phone Number	*Signature/ Date:*
Adam Adams / 214-202-6952	for 3/25/2019

Team Member(s) / Cell Phone Number	*Signature/ Date:*	***Team Member(s) / Cell Phone Number***	*Signature/ Date:*
Steve Mason /		214-789-1871 /	
Matt Loesel /	3/25/19	214 -738-0674 /	
Kelsey Fisher /	3/25/19	469-510-8825 /	
Ronnie Crossland /	3/25/19	214-329-8309 /	
/		/	
/		/	
/		/	
/		/	

By signing below, I certify that I have read and approved this HASP, and have confirmed the team listed above are all current in their H&S training/programmatic requirements as defined in their current JHA(s).

First-Line Supervisor: Chris Petersen	*Signature/ Date:* for C. Petersen 3/26/2019
Health & Safety Officer: Kendra Mask	*Signature/ Date:*

NOTE: *After approval of the HASP and before departing to the field, the project leader must email a signed PDF copy to each of his/her TEAM MEMBER(s), FIRST-LINE SUPERVISOR, and the SHEMP MANAGER. The project leader must carry and maintain a signed hardcopy in the field and have it accessible for all team members.*

☐ ***HASP DISAPPROVED*** ***For Health & Safety Officer Use Only***

HASP Disapproved

Deficient Area(s): ☐ *HASP Error* ☐ *Training Error* ☐ *Programmatic Error*	
Health & Safety Officer: Kendra Mask	*Signature:* *Date:*

JOB HAZARD ANALYSIS

Hazard Types (HT)

1. Toxic Chemic
2. Flammable Chemicals
3. Corrosive Chemicals
4. Environmental
5. Explosion (Chemical Reaction)
6. Explosion (Over pressurization)
7. Mechanical/Vibration
8. Electrical (Shock, Short Circuit)
9. Electrical (Fire)
10. Electrical (Static, ESD)
11. Electrical (Loss of Power)
12. Ergonomic (Overexertion)
13. Ergonomic (Human Error)
14. Vibration
15. Fall (Slips/Trips)
16. Fall (To a Different Level)
17. Excavation (Collapse)
18. Fire, Heat, Thermal, Cold
19. Noise
20. Radiation (Ionizing/Non-Ionizing)
21. Visibility
22. Weather
23. Caught (In, On, Between)
24. Struck (By, Against)
25. Driving
26. Confined Space
27. Biological (Pathogens, animals, etc.)
28. Fatigue
29. Other

Job Task: On-Scene Coordinators

Job Frequency/Duration:
60% of the year
1 -21 days

Tools Used:
Digital Camera
Laptop
GPS unit
Gear Bag

Chemicals Used:
None

CRITICAL TO SAFETY (CTS)

Risk Estimation Matrix

Probability of Occurrence of Harm	SEVERITY OF HARM			
	Catastrophic	Serious	Moderate	Minor
VERY LIKELY	Extreme	High	High	Medium
LIKELY	High	High	Medium	Low
UNLIKELY	Medium	Medium	Low	Negligible
REMOTE	Low	Low	Negligible	Negligible

* High = CTS tasks should receive engineering controls prior to assigning administrative or PPE controls.

Job Description: The OSC responds to releases of hazardous substances and petroleum products under CERCLA or OPA, respectively. The response may involve assessment, stabilization, and cleanup of the hazardous substance or petroleum product. The response can take place in any conceivable location, time, and weather condition. The Emergency Management Program (EMP) expects the OSC to be able to work safely in a hazardous environment with proper training on awareness and use of PPE. As stated in the PPE Program, EMP expects engineering and administrative controls will be considered before relying on PPE for protection.

Step #	Procedures (LOP Procedure Step)	Potential Hazards	HT	Check CTS	Required Safe Practice	PPE
1	Response to scene of accident	Ergonomics, Driving, Weather	13, 21, 22, 24, 25, 28	Medium	Careful lifting techniques, secure grip, packing at desk level or higher; Drive defensivly; do not text while driving	None
2	Assess the situation and determine if release needs to be secured and stabilized or is ready for cleanup. If clean-up is required, write a HASP prior to cleanup activities commensing. Perform cleanup activities.	Chemicals, heat/cold stress, fire, explosion, noise, slips/trips/falls, biological, electricity, radiation, confined space	1-29	Low – Extreme	Reference table below and PPE Hazard Assessment Form	
3	Demobilize	Ergonomics, Driving, Weather	13, 21, 22, 24, 25, 28	Medium	Careful lifting techniques, secure grip, unpacking at desk level or higher; Drive defensivly; do not text while driving	None

HAZARDS – NOTE ALL POTENTIAL HAZARDS ASSOCIATED WITH THE JOB (CHECK ALL THAT APPLY)

Physical						
General	☒	heat	☒	cold	☒	noise
	☒	explosion	☒	fire	☒	weather
	☒	fatigue	☒	violence	☒	illness/injury
Radiation	☒	ionizing	☒	microwave	☐	light
Vehicles	☒	traffic	☒	heavy equip	☒	forklift
	☒	helicopter	☒	small aircraft	☒	boat
Boat Ops	☐	sediment sampling	☐	rapid water	☒	open water
	☐	diving	☐	electrofish		
Industrial	☒	comp gas	☒	electricity	☒	confined space
	☒	equip	☒	moving parts		
Overhead	☒	obstruction	☒	falling objects		
Elevation	☒	roof	☒	scaffold	☒	ladder
	☒	stairs	☒	catwalk		
Slips/trips	☒	terrain	☒	debris	☒	slippery
	☒	trench	☒	pits/holes		
Other physical hazards:			☒	High altitudes, physical exertion, driving		

Biological						
Agriculture	☐	CAFO	☐	fish	☒	farm animals
Animals	☒	dogs	☒	feral animals	☒	snakes
Insects	☒	spiders	☒	mosquitoes	☒	wasp/hornet
	☒	bees				
Pathogens	☒	bloodborne	☐	sewage	☒	med/lab
Other Biological:	☒	poisonous plants, domestic animals, scorpions, chemistry laboratories with abandoned chemicals				

Chemical						
Containers	☒	ammonia	☒	chlorine	☒	other
VOCs	☒	solvents	☒	fuel	☒	oils
Wastes	☒	sewer	☒	landfill	☒	smoke/dust/fume
	☒	metals	☒	PCBs	☒	paints/surfacing
Particulates	☒	fibers	☒	diesel	☒	asbestos
Sampling	☒	acids	☒	bases		
Other Chemicals:	☒	Industrial chemicals, mercury, pesticides, chemical warfare agents, biological agents				

REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE) (CHECK ALL THAT APPLY)

Feet:	☐	safety boots	☒	steel-toe boots	☐	shank
	☒	rubber booties	☐	waders	☐	other:
Gloves:	☐	leather	☐	cotton	☐	cut-resistant
	☒	chemical resist	☒	disposable		
Body:	☒	safety vest	☒	pfd	☐	harness
	☒	tyvek	☒	saranex	☐	coveralls
Eyes:	☒	safety glasses	☐	sunglasses	☐	goggles
Head:	☒	hard hat	☒	hearing protection	☒	respirator

OTHER REQUIRED SAFETY EQUIPMENT/TRAINING

☒	dosimetry	☒	communication	☐	decon
☒	first aid kit	☐	fire extinguish	☐	flares
☐	chains/studs	☐	eye wash/shower		

☐	24 hr HAZWOPER	☒	40 hr HAZWOPER	☒	HAZWOPER Annual Refresher
☒	TLD Program	☒	RPP Program	☒	Medical Surveillance
☒	1st Aid/CPR	☒	Other: 1) Defensive Driving; 2) Radiation Safety Training; 3) Watercraft Safety Training; 4) Bloodborne pathogens awareness; 5) Confined Space		

COMMENTS:

Potential chemical exposures are numerous and include, but are not limited to, VOCs, SVOCs, pesticides, herbicides, solvents, fuel, radionuclides, asbestos, mercury, chemical warfare agents, and biological agents. Personnel may also encounter abandoned chemistry laboratories, in which chemicals may still reside. Although personnel are not conducting the remedial actions themselves, they are in close proximity to contractors conducting the work and have the potential to encounter the hazardous constituents. Depending upon the situation, personnel may require use of respiratory protection to reduce exposures to airborne contaminants. Personnel are potentially exposed to hazardous noise; however, exact sound levels are not known at this time. Further analysis is required. Sources of hazardous noise include industrial equipment, heavy equipment, etc. Personnel are required to wear ear plugs and/or muffs while working around hazardous noise sources. Employees engage in field activities during all types of weather conditions, to include extreme heat and cold. Thermal stress is a viable hazard; therefore personnel must ensure adequate hydration and appropriate field gear is worn while engaging in field activities. In addition, field acitivies are conducted on various terrain and in remote locations where pits, holes, and trenches are encountered. Personnel need to be cognizant of their surroundings, utilize steal-toed boots, and take evasive actions to avoid contact with such hazards. Potential fire and or/ explosions hazards are possible. Personnel are usually accompanied by either a State Representative, site owner or responsible party who are knowledgeable about site conditions. Personnel may climb structures, greater than 4 feet above ground surface, to observe potential deficiencies. Personnel climb stairways with approriate handrails and walkways. Personnel must inspect stairways/walkways to ensure structural integrity and/or question site personnel regarding structural stability prior to climbing. Personnel may climb step ladders or extension ladders to inspect equipment or condust sampling. Employees must pay attention to proper ladder selection and electrical shock precautions. Personnel may encounter ionizing radiation, above background levels, while at various facilities). EPA employees are enrolled in the Regional TLD program and assigned a radiation badge for use during these types of facility inspections. Radiation Safety Training is required. Although rare, employees may be exposed to a variety of electrical components. REFERENCE PPE HAZARD ASSESSMENT FORM FOR SPECIFIC EXPLANATION OF HAZARDS ASSOCIATED WITH THIS JOB HAZARD ANALYSIS.

CERTIFICATION OF HAZARD ASSESSMENT

SUPERVISOR:	DATE:	SAFETY/HEALTH REPRESENTATIVE:	DATE:
J Chris Petersen	11/4/13	Lynda Cl	10-22-13

PPE Hazard Assessment Form

HEALTH AND SAFETY HAZARDS		
Chemical Hazards		**Description/Mitigation**
X	Vapors/gases	Personnel may be potentially exposed to a wide variety of chemicals during response activities.
X	Dusts/mists/fumes	Personnel may be potentially exposed to a wide variety of chemicals during response activities.
X	Liquid splash	Personnel may be potentially exposed to a wide variety of chemicals during response activities.
Comments:		Potential chemical exposures are numerous and include, but are not limited to, VOCs, SVOCs, pesticides, herbicides, solvents, fuel, radionuclides, asbestos, mercury, chemical warfare agents, and biological agents. Personnel may also encounter abandoned chemistry laboratories, in which chemicals may still reside. Although personnel are not conducting the remedial actions themselves, they are in close proximity to contractors conducting the work and have the potential to encounter the hazardous constituents. Depending upon the situation, personnel may require use of respiratory protection to reduce exposures to airborne contaminants.
Physical Hazards		**Description/Mitigation**
X	Ergonomics	Personnel may experience repetitive motions, frequent or heavy lifting, pushing, pulling, or carrying of heavy objects; and prolonged awkward postures. Vibration and cold may add risk to these work conditions. The level of risk depends on the intensity, frequency, and duration of the exposure to these conditions. Careful lifting techniques along with secure grips and packing at desk level or higher will reduce potential exposures.
X	Heat — high temperatures	Employees engage in field activities during all types of weather conditions, to include extreme heats. Heat stress is a viable hazard; therefore personnel must ensure adequate hydration and appropriate field gear (light weight, loose fitting and light-colored clothing) is worn while engaging in emergency response activites. Personnel must be knowledgeable on the signs and symptoms of heat stress, heat stroke, and heat exhaustion and understand corrective measures to take.
X	Cold — cold temperatures	Employees engage in field activities during all types of weather conditions, to include cold weather. Although field activities are performed in temperate climates, cold weather may be a potential hazard. Personnel must ensure adequate hydration and appropriate field gear (layers, protecting the extremities especially fingers, toes, nose, and ears) is worn while engaging in response activites. Personnel must be knowledgeable on the signs and symptoms of frost bite and hypothermia and understand corrective measures to take.
X	Electricity	Employees may be exposed to electrical shock during response activities, depending upon the structural integrity of the overall power grid while commuting and the facility's internal electrical system. Always assume power lines are live and never touch or drive over them. Maintain a safe distance from all electrical components. If exposed lines are present, do not touch any metal objects/equipment nor stand in nearby pools/puddles of water.
X	Radiation — ionizing, non-ionizing	Personnel may encounter ionizing & non-ionizing radiation, above background levels, while at sites. Personnel conduct radiation assessments prior to site entry. EPA employees are enrolled in the Regional TLD program and assigned a radiation badge for use during site visits which may have sources of ionizing radiation. Annual Radiation Safety Training is required.
X	Noise	Personnel are occasionally exposed to various sources of hazardous noise, to include industrial equipment. However, the equipment is usually abandoned and inoperable. In addition, personnel may work around/near heavy equipment (e.g. debris removal trucks, backhoes, dump trucks, etc.) Personnel must wear ear plugs and/or muffs while around hazardous noise sources. Noise levels have not been documented. Further analysis is required.
X	Fire/Explosion	Due to the nature of emergency responses, potential fire and or/ explosions hazards are probable due to broken gas lines and damaged electrical lines or appliances. Personnel may be exposed to existing fires or new fires created by aftershocks. Incompatible chemicals (flammable, corrosive, ignitable) may interact due to a variety of circumstances, creating an explosion hazard. If personnel observe any spills/leaks/releases, they should exit the area immediately. Personnel should also follow the emergency response procedures given during the situational awareness/safety briefing.
X	Slips/Trips/Falls	Slips/trips/falls are always probable conducting field visits, outside where pits, holes, and various terrains are encountered. Personnel need to be cognizant of their surroundings, wear steel-toed safety boots, and take evasive actions to avoid contact with such hazards.
X	Elevation - Falls	Personnel may climb units, greater than 4 feet above ground surface, to observe potential deficiencies. Personnel climb stairways with approriate handrails and/or ladders affixed to various units. Personnel must inspect stairways/walkways to ensure structural integrity and/or question site personnel regarding structural stability prior to climbing. Personnel may climb step ladders or extension ladders to inspect equipment. Personnel must pay close attention to the Duty Rating of the ladder and the combined weight of the user and materials. Select a ladder with the proper capacity. Also, be sure to select a ladder of proper height to reach the work area without overextending. Be aware of wires, electdeal devices and live electrical circuits. Metal ladders conduct electricity and can create a danger of electrocution. Failure to read and follow instructions regarding electrical safety could result in serious personal injury or death.

Physical Hazards Cont.		Description/Mitigation
X	Confined spaces	Although employees **do not** enter confined spaces, they may still encounter confined spaces and need applicable awareness training. Such confined spaces are found in industries such as ships, paperboard mills, telecommunications, sewer, petroleum refineries,nd chemical storage and/or distribution. Personnel are restricted from permit required confined spaces. **If you are not sure, do not enter.**
X	Driving	Vehicular accidents and traffic are potential hazards encountered while driving to and from sites. Defensive driving training is required (every 3yrs). Personnel must be attentive to the absence of stop lights, debris in roadway, downed or low-hanging electrical/power lines, other vehicles, etc. Do not use hand-held devices or text while driving. Personnel must keep updated maps and routes, and keep cell phone charged and readily accessible for emergency communications or situational updates.
X	Other	Fatigue is also a concern due to potentially long working hours (12-16 hours/day). Personnel must limit work shifts to a maximum of 16 hours including travel time to and from base station. Ensure adequate sleep of at least 7-8 hrs and take frequent breaks. Personnel should check weather forecasts prior to deployment and prepare for conditions prior to leaving for the site.
Biological Hazards		**Description/Mitigation**
X	Animals	Employees may encounter a variety of animals and insects while in the field. These include dogs, feral animals, snakes, mosquitos, spiders, bees, wasps, etc. Personnel must pay special attention to displaced household pets, as they can be especially dangerous. Personnel are not to engage no matter how friendly they seem. Personnel should wear appropriate field gear depending upon the location (e.g. long sleeves, long pants, snake chaps, insect repellent, etc). Personnel need to be cognizant of their surroundings and take evasive actions to avoid contact with animals/insects.
X	Other	Personnel have the potential to encounter unknown water and/or raw sewage, in which various pathogens are present. Personnel utilize latex gloves and administrative controls, such as non-entry procedures, to reduce potential exposures to biological hazards. Personnel are required to practice good hygiene, such as proper hand washing and/or antimicrobial wipes/liquid, to reduce biological exposures. Employees are often in remote locations, in which poison ivy and other infectious plants are present. Personnel must be trained to ensure they are aware of the surroundings and avoid plants to prevent injury/illness. Cut-resistant gloves should also be utilized to reduce potential exposures.

Completed by: Kendra Gomez & Rita Engblom **Date: March 15, 2012**
Updated by: Kendra Gomez **Date: 6/27/2013**
SHEMP Review Kendra Gomez **Date:** 10-22-13

Required Personal Protective Equipment			
Where engineering and administrative controls are not feasible or sufficient for controlling hazards, PPE must be used to protect workers. The following PPE is required for the noted tasks above:			
Eye and Face Protection			
X	Safety glasses with side shields		Reflective goggles/face shield
	Chemical splash goggles		Cutting/brazing/welding eye protection
	Face shield		Other:
Head Protection			
X	Hard hat		Helmet, cowl, hood
	Welding helmet/mask		Other:
Foot Protection			
X	Steel-toed safety shoes/boots		Other:
X	Chemical-resistant booties		
Body Protection			
	Apron (splash, work)		Head-reflective garments
	Lab coat		Sleeves (cut-resistant)
X	Coveralls (work, chemical-resistant) Type chemical: Varies Type coverall: Totally encapsulating chemical-protective (TCEP) suit; tyvek; saranex	X	Other: Appropriate field gear for the weather (thermal/cold stress); Reflective safety vest; USCG Personal Flotation Device (Type I, II, or III);
Respiratory Protection			
X	Respirator	X	Type of respirator: Full Face Air Purifying Respirator with appropriate cartridges for the contaminant of concern; Self-contained breathing apparatus (SCBA); Powered Air Purifying Respirators (PAPRs)
Hand Protection			
	Rubber insulating gloves		Rubber insulating sleeves
	Rubber insulating hoods	X	Other: **Chemical Resistant Gloves (type dependent upon chemical of concern)
Other: Ear plugs and/or muffs Sunscreen Insect repellent **Chemical resistant gloves must be selected based upon adequate breakthrough times for specific chemicals of concern. Please contact the R6 Health & Safety Office for assistance in glove selection.			

HEALTH & SAFETY TRAINING REQUIREMENTS

EPA employees must **maintain HAZWOPER certification** and are required to have the following:

Course Name	Training Location	Training Frequency
40 hr HAZWOPER Training	In-Class	Initial – One time
8hr HAZWOPER Refresher	In-Class	Annual
24hr EPA H&S Training for Field Activities (OTH 952) modules: • Watercraft Safety Training • Confined Space Entry	Skillport Website (EPA E-Learning)	Initial
Radiation Safety Training	Skillport Website (EPA E-Learning) or H&S Office	Annual
Defensive Driving	GSA Website	Every 3yrs
First Aid/CPR	In-Class	Every 2yrs
Respirator Fit Test & Training	H&S Office	Annual
Bloodborne Pathogen Awareness	OSC Meeting	Annual

I HAVE READ OR BEEN BRIEFED ON THE HAZARDS AND PROTECTIVE MEASURES IDENTIFIED FOR THE ABOVE-LISTED TASKS AND FULLY UNDERSTAND THE JOB-SPECIFIC REQUIREMENTS THAT HAVE BEEN ESTABLISHED.

DATE	EMPLOYEE NAME	EMPLOYEE SIGNATURE	EMPLOYER NAME
4/2/2012	Stephen Mason		
4/2/12	Jim Power		KCG 8/22/13 RETIRED
4-2-12	NICOLAS BRESCIA		
4/2/12	Bill Pfotenberry		
4/2/12	Thomas Cook		KCG 8/22/13 MOVED TO GPD
4-2-12	Jon Rinehart		
4/2/12	Brandi Todd		
4/2/12	Susan Webster		
"	"		KCG 8/22/13 RETIRED.
4/2/12	ADAM ADAMS		
4/2/12	Althea Foster		
4/2/2012			
4/2/12			
4-2-12	Mike McAfee		
4/2/12	GARY Moore		
4/2/12			
4/2/12			
4/2/12	John Martin		
4/2/12	Paige Delgado		

I HAVE READ OR BEEN BRIEFED ON THE HAZARDS AND PROTECTIVE MEASURES IDENTIFIED FOR THE ABOVE-LISTED TASKS AND FULLY UNDERSTAND THE JOB-SPECIFIC REQUIREMENTS THAT HAVE BEEN ESTABLISHED.

DATE	EMPLOYEE NAME	EMPLOYEE SIGNATURE	EMPLOYER NAME
5/7/12	JUANA ENDERA		US EPA
5/7/12	Drew Smith		US EPA
5/7/12	Warren Zehner		US EPA
5/7/12	Eric Delgado		US EPA
5/7/12	GARY Moore		US EPA
5/7/12	CHRIS KIL		US EPA
"	Brent Toder		
"	Mark Hages		EPA
"	Valmichael Leos		US EPA
5/7/12	Chris Petersen		USEPA
5/7/12	David M McQuiddy		US EPA
5/7/12	Roger Brayton		US EPA

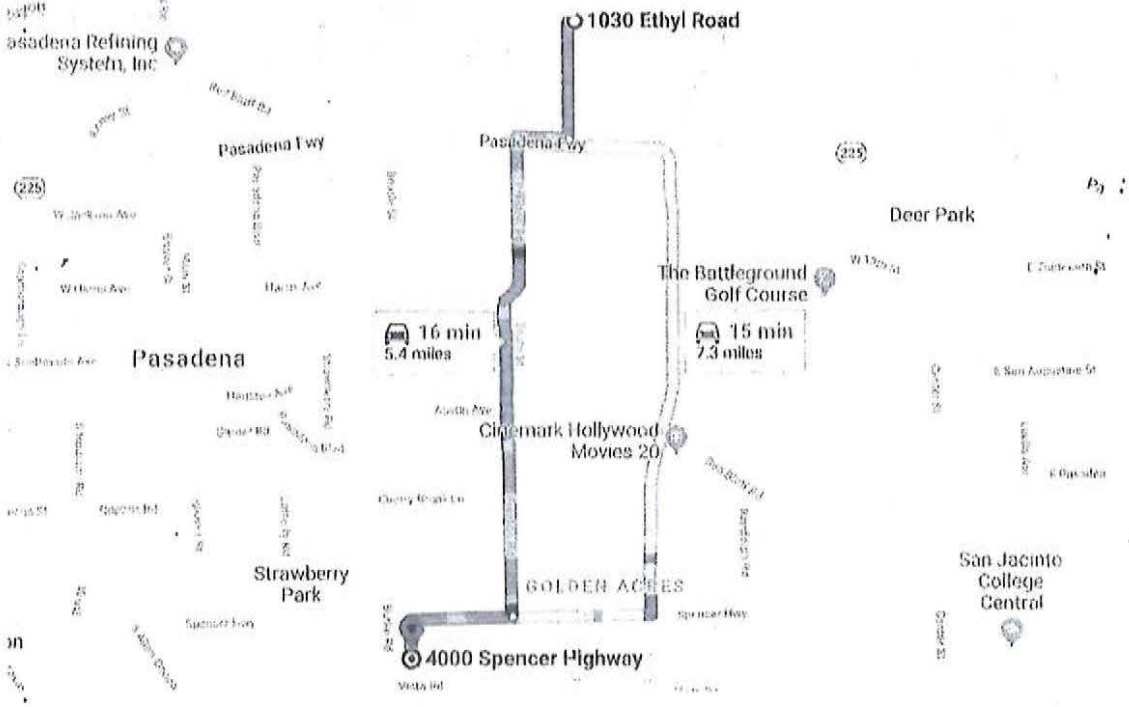
Total VOCs and Benzene:

Action level for benzene under all circumstances is ½ of the current OSHA PEL or 0.5 ppm.
A full-facepiece APR with Organic Vapor or Combination cartridges (Scott SC1 or SD1) provides an Assigned Protection Factor of 50. The Maximum Use Concentration for benzene is (50)*(0.5) = 25 ppm.
Any benzene concentrations >25 ppm: Leave area and plan for Level B respiratory protection.

When other BTEX or fuel components are present, follow guidance in Weston FLD-61. PID measurements of total VOC, in the absence of benzene >0.5 ppm are:

0-10 ppm by PID: Level D;
10-150 ppm by PID: monitor for benzene. Follow guidance above if any benzene concentrations >0.5 ppm are encountered
>150 ppm with benzene <0.5 ppm, Level C with FFAPR + OV or combination cartridges (Scott SC1 or SD1)

Local Medical Emergency Facility(s) – LMF		
Name of Hospital: HCA Houston Southeast		
Address: 4000 Spencer Hwy, Pasadena, TX		Phone No.: 713-359-2000
Name of Contact: EMERGENCY ROOM		Phone No.:
Type of Service: ☐ Physical trauma only ☐ Chemical exposure only ☐ Physical trauma and chemical exposure ☒ Available 24 hours	**Route to Hospital:** **Google Maps:** https://www.google.com/maps	**Travel time from site:** _21__ minutes **Distance to hospital:** _12.2__ miles **Name/no. of 24-hr ambulance service:** 911



- **Starting from command center (1030 Ethyl Rd. Pasadena, TX)**
- **Head south on Ethyl Rd. toward Pasadena Freeway Frontage Rd. for 0.8 mi.**
- **Turn right onto Pasadena Freeway Frontage Rd. for 0.4 mi.**
- **Use the left 2 lanes to turn left onto N. Preston Rd for 3.3 mi.**
- **Turn right onto Spencer Hwy for 0.7 mi.**
- **Turn left onto Bayshore Ave for 0.2 mi.**
- **Turn right onto medical Cir for 3 ft.**

CHEMICAL CONTAMINANTS DATA SHEETS

Partial Library of NIOSH Pocket Guide Sheets:

\\fsden03\data\Project Files\20408 EPA Region 8 START IV\Laptop Resources\Resources - Templates\NIOSH-Pocket Guide Sheets

The entire NIOSH Pocket Guide list of chemicals is available online at:

http://www.cdc.gov/niosh/npg/npgsyn-a.html#a

NIOSH Pocket Guide to Chemical Hazards

Benzene			**CAS** 71-43-2
C_6H_6			**RTECS** CY1400000
Synonyms & Trade Names Benzol, Phenyl hydride			**DOT ID & Guide** 1114 130
Exposure Limits	NIOSH REL: Ca TWA 0.1 ppm ST 1 ppm See Appendix A		
	OSHA PEL: [1910.1028] TWA 1 ppm ST 5 ppm See Appendix F		
IDLH Ca [500 ppm] See: 71432		**Conversion** 1 ppm = 3.19 mg/m³	
Physical Description Colorless to light-yellow liquid with an aromatic odor. [Note: A solid below 42°F.]			
MW: 78.1	BP: 176°F	FRZ: 42°F	Sol: 0.07%
VP: 75 mmHg	IP: 9.24 eV		Sp.Gr: 0.88
Fl.P: 12°F	UEL: 7.8%	LEL: 1.2%	
Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.			
Incompatibilities & Reactivities Strong oxidizers, many fluorides & perchlorates, nitric acid			
Measurement Methods NIOSH 1500, 1501, 3700, 3800; OSHA 12, 1005 See: NMAM or OSHA Methods			
Personal Protection & Sanitation (See protection) Skin: Prevent skin contact Eyes: Prevent eye contact Wash skin: When contaminated Remove: When wet (flammable) Change: No recommendation Provide: Eyewash, Quick drench		**First Aid** (See procedures) Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately	

Important additional information about respirator selection

Respirator Recommendations (See Appendix E) NIOSH

At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus

Exposure Routes inhalation, skin absorption, ingestion, skin and/or eye contact

Symptoms Irritation eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; anorexia, lassitude (weakness, exhaustion); dermatitis; bone marrow depression; [potential occupational carcinogen]

Target Organs Eyes, skin, respiratory system, blood, central nervous system, bone marrow

Cancer Site [leukemia]

NIOSH Pocket Guide to Chemical Hazards

Ethyl benzene

CAS 100-41-4

$CH_3CH_2C_6H_5$

RTECS DA0700000

Synonyms & Trade Names
Ethylbenzol, Phenylethane

DOT ID & Guide
1175 130

Exposure Limits	NIOSH REL: TWA 100 ppm (435 mg/m³) ST 125 ppm (545 mg/m³)
	OSHA PEL†: TWA 100 ppm (435 mg/m³)

IDLH 800 ppm [10%LEL] See: 100414

Conversion 1 ppm = 4.34 mg/m³

Physical Description
Colorless liquid with an aromatic odor.

MW: 106.2	BP: 277°F	FRZ: -139°F	Sol: 0.01%
VP: 7 mmHg	IP: 8.76 eV		Sp.Gr: 0.87
Fl.P: 55°F	UEL: 6.7%	LEL: 0.8%	

Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.

Incompatibilities & Reactivities
Strong oxidizers

Measurement Methods
NIOSH 1501; OSHA 7, 1002
See: NMAM or OSHA Methods

Personal Protection & Sanitation (See protection)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated
Remove: When wet (flammable)
Change: No recommendation

First Aid (See procedures)
Eye: Irrigate immediately
Skin: Water flush promptly
Breathing: Respiratory support
Swallow: Medical attention immediately

Important additional information about respirator selection

Respirator Recommendations NIOSH/OSHA

Up to 800 ppm:
(APF = 10) Any chemical cartridge respirator with organic vapor cartridge(s)*
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister
(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s)*
(APF = 10) Any supplied-air respirator*
(APF = 50) Any self-contained breathing apparatus with a full facepiece

Emergency or planned entry into unknown concentrations or IDLH conditions:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus

Exposure Routes inhalation, ingestion, skin and/or eye contact

Symptoms Irritation eyes, skin, mucous membrane; headache; dermatitis; narcosis, coma

Target Organs Eyes, skin, respiratory system, central nervous system

NIOSH Pocket Guide to Chemical Hazards

Toluene	**CAS** 108-88-3
$C_6H_5CH_3$	**RTECS** XS5250000
Synonyms & Trade Names Methyl benzene, Methyl benzol, Phenyl methane, Toluol	**DOT ID & Guide** 1294 130

Exposure Limits	NIOSH REL: TWA 100 ppm (375 mg/m³) ST 150 ppm (560 mg/m³)		
	OSHA PEL†: TWA 200 ppm C 300 ppm 500 ppm (10-minute maximum peak)		
IDLH 500 ppm See: 108883		**Conversion** 1 ppm = 3.77 mg/m³	

Physical Description
Colorless liquid with a sweet, pungent, benzene-like odor.

MW: 92.1	BP: 232°F	FRZ: -139°F	Sol(74°F): 0.07%
VP: 21 mmHg	IP: 8.82 eV		Sp.Gr: 0.87
Fl.P: 40°F	UEL: 7.1%	LEL: 1.1%	

Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.

Incompatibilities & Reactivities
Strong oxidizers

Measurement Methods
NIOSH 1500, 1501, 3800, 4000; OSHA 111
See: NMAM or OSHA Methods

Personal Protection & Sanitation (See protection)	**First Aid** (See procedures)
Skin: Prevent skin contact Eyes: Prevent eye contact Wash skin: When contaminated Remove: When wet (flammable) Change: No recommendation	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Important additional information about respirator selection

Respirator Recommendations NIOSH

Up to 500 ppm:
(APF = 10) Any chemical cartridge respirator with organic vapor cartridge(s)*
(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s)*
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister
(APF = 10) Any supplied-air respirator*
(APF = 50) Any self-contained breathing apparatus with a full facepiece

Emergency or planned entry into unknown concentrations or IDLH conditions:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus

Exposure Routes inhalation, skin absorption, ingestion, skin and/or eye contact

Symptoms Irritation eyes, nose; lassitude (weakness, exhaustion), confusion, euphoria, dizziness, headache; dilated pupils, lacrimation (discharge of tears); anxiety, muscle fatigue, insomnia; paresthesia; dermatitis; liver, kidney damage

Target Organs Eyes, skin, respiratory system, central nervous system, liver, kidneys

NIOSH Pocket Guide to Chemical Hazards

o-Xylene			CAS 95-47-6
$C_6H_4(CH_3)_2$			RTECS ZE2450000
Synonyms & Trade Names 1,2-Dimethylbenzene; ortho-Xylene; o-Xylol			**DOT ID & Guide** 1307 130
Exposure Limits	NIOSH REL: TWA 100 ppm (435 mg/m³) ST 150 ppm (655 mg/m³)		
	OSHA PEL†: TWA 100 ppm (435 mg/m³)		
IDLH 900 ppm See: 95476		**Conversion** 1 ppm = 4.34 mg/m³	
Physical Description Colorless liquid with an aromatic odor.			
MW: 106.2	BP: 292°F	FRZ: -13°F	Sol: 0.02%
VP: 7 mmHg	IP: 8.56 eV		Sp.Gr: 0.88
Fl.P: 90°F	UEL: 6.7%	LEL: 0.9%	
Class IC Flammable Liquid: Fl.P. at or above 73°F and below 100°F.			
Incompatibilities & Reactivities Strong oxidizers, strong acids			
Measurement Methods NIOSH 1501, 3800; OSHA 1002 See: NMAM or OSHA Methods			
Personal Protection & Sanitation (See protection) Skin: Prevent skin contact Eyes: Prevent eye contact Wash skin: When contaminated Remove: When wet (flammable) Change: No recommendation		**First Aid** (See procedures) Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately	

Important additional information about respirator selection

Respirator Recommendations NIOSH/OSHA

Up to 900 ppm:

(APF = 10) Any chemical cartridge respirator with organic vapor cartridge(s)*

(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s)*

(APF = 10) Any supplied-air respirator*

(APF = 50) Any self-contained breathing apparatus with a full facepiece

Emergency or planned entry into unknown concentrations or IDLH conditions:

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus

Exposure Routes inhalation, skin absorption, ingestion, skin and/or eye contact

Symptoms Irritation eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis

Target Organs Eyes, skin, respiratory system, central nervous system, gastrointestinal tract, blood, liver, kidneys